Module - 1

Module - 2

Syllabus : Design of Pneumatic sequencing circuits using Cascade method and Shift register method (up to 2 cylinders) ,Basic Hydraulic Circuits : Meter in, meter out and Bleed off circuits; Intensifier circuits, Regenerative Circuit, Counter balance valve circuit and sequencing circuits

Module - 3

Syllabus : Electro-pneumatic Circuits : Design of Electro-Pneumatic Circuits using single solenoid and double solenoid valves; with and without grouping; **PLC Discrete Control Systems :** Design of Pneumatic circuits using PLC Control (ladder programming only) up to 2 cylinders, with applications of Timers and Counters and concept of Flag and latching.

Module - 4

Syllabus : Introduction to Robots, Types, Classifications, Selection of Robots, Robot Degrees of freedom, Robot configuration, Accuracy and repeatability, Specification of a Robot, Robot feedback controls: Point to point control and Continuous path control, Control system for Robot joint, Adaptive control, Drives and transmission systems, End effectors, Industrial robot applications, Nex-gen robots.

Module 5

Syllabus : Tree and Graph Search, Uninformed v/s informed search, uninformed methods: depth first search, breadth first search, Informed search: heuristic search, Best first search, branch and bound

Syllabus : Machine Learning, Introduction, Types of machine learning: supervised, unsupervised, reinforcement learning, Learning with Decision Trees, Introduction to Decision Trees, Classification and Regression Trees, Concept of ensemble methods : bagging, boosting, random forests, K means clustering algorithm, K nearest neighbours algorithm, Hierarchical clustering

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